

REMARKS

Summary of the Office Action

Claims 1, 4-6, 11-13, 15, 18-20, 25-27 and 29-32 have been considered in the Office Action.

Claims 1, 4-6, 11-13, 15, 18-20, 25-27, 29-32 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 1, 11-13, 15 and 25-27 have been rejected under 35 U.S.C. § 103(a) as obvious over Kurogane U.S. Patent No. 6,259,424 (“Kurogane”) in view of Krusius et al. U.S. Patent No. 6,005,649 (“Krusius”), Lambert U.S. Patent No. 6,816,143 (“Lambert”) and Yamazaki et al. U.S. Patent No. 6,147,667 (“Yamazaki”).

Claims 29-32 have been rejected under 35 U.S.C. § 103(a) as obvious over Yamazaki in view of Krusius, Kurogane, Lambert and Hiroki U.S. Patent No. 6,618,115 (“Hiroki”).

Claims 4 and 18 have been rejected under 35 U.S.C. § 103(a) as obvious over Yamazaki in view of Krusius, Kurogane and Lambert.

Claims 5 and 19 have been rejected under 35 U.S.C. § 103(a) as obvious over Yamazaki in view of Krusius, Kurogane, Lambert and Yang U.S. Patent No. 6,392,427 (“Yang”).

Claims 6 and 20 have been rejected under 35 U.S.C. § 103(a) as obvious over Yamasaki in view of Krusius, Kurogane, Lambert and Anholm et al. U.S. Patent No. 5,043,655 (“Anholm”).

Summary of the Reply

Applicants have amended claims 1, 6, 12, 15, 20, 26 and 29-32 to more particularly describe and distinctly claims the invention. Applicants respectfully submit that the cited references do not describe or suggest the claimed invention.

Reply to § 112, First Paragraph Rejections

Claims 1, 4-6, 11-13, 15, 18-20, 25-27 and 29-32 have been rejected under § 112, first paragraph. In particular, the Office action states that the specification does

not describe fully manufacturing the control chip. Further, the Office action states that the “manufacturing process is not completed until final configuration of is done and micro-display ship to the user,” and that “even after assembling of LCD, manufacturing process is not completed until all defects will be mitigated. User will not be able to implement repairs because he has no knowledge or the tools enabling the process of repair. Therefore, control chip is not fully manufactured until mitigation of defects done and the product send to the user.”

Applicants respectfully disagree that “fully manufacturing the control chip” requires, as the Office action asserts, fully manufacturing the liquid crystal micro-display, finally configuring the display, completely mitigating all defects in the display, and shipping the display to a user. Nothing in this application supports such a narrow interpretation of the claim language. Further, such an interpretation is inconsistent with the Office action’s subsequent §103 analysis on pages 3 and 5, which asserts that claims 1 and 15 are obvious because Kurogane describes “identifying defective MOS drive circuitry for the inoperative pixel . . . after fabrication of MOS control chip” (emphasis added).

Nevertheless, to help move this case along, applicants have deleted the “fully manufacturing the control chip” language from claims 1 and 15. Applicants therefore respectfully submit that the § 112, first paragraph, rejections are moot, and that these rejections should be withdrawn.

Reply to § 103(a) Rejections

Claims 1, 4-6, 11-13, 15, 18-20, 25-27 and 29-32 have been rejected under § 103(a) as obvious based on various combinations of Kurogane, Krusius, Lambert, Yamazaki, Hiroki, Yang and Anholm. Amended independent claims 1 and 15 recite methods and apparatus for mitigating defects in a liquid crystal micro-display that includes a CMOS control chip containing a plurality of pixel drive circuits, each pixel drive circuit coupled to a corresponding pixel, the methods and apparatus:

- (1) identifying a defective pixel drive circuit coupled to an inoperative pixel;
- (2) disconnecting the defective pixel drive circuit from the inoperative pixel; and
- (3) connecting the inoperative pixel to a working pixel drive circuit coupled to a nearby pixel such that the defective pixel drive circuit is bypassed and the inoperative pixel is

driven from the working pixel drive circuit of the nearby pixel, the nearby pixel comprising one of an adjacent pixel or a non-adjacent pixel. None of the cited references, alone or combined, describe or suggest such methods or apparatus.

The primary reference, Kurogane, describes a process used to manufacture a liquid crystal display apparatus in a way that limits the adverse effects of defective switching elements. (Col. 1, lines 7-11; Col. 4, lines 18-27). In particular, during the manufacturing process, transistors 1A and 1B are formed on a silicon substrate 10. (Col. 7, lines 55-57; FIG. 7). Electrical signals are then used to detect defective transistors. (Col. 8, lines 11-38). In the illustrated example, transistor 1A is defective. (Col. 8, lines 7-10). After defective transistors are identified, a second or modified mask is used to prevent the source electrode of defective transistors from being connected to their corresponding pixel electrodes (Col. 9, lines 5-16). Then, pixel electrodes 2A and 2B are formed, and are coupled together. (Col. 9, lines 22-50). As a result, pixel electrode 2A of defective pixel 21A is electrically connected to pixel electrode 2B of the adjacent normal pixel 21B. (Col. 9, lines 57-61).

Thus, unlike the claimed invention, Kurogane does not describe or suggest methods or apparatus that identify a defective pixel drive circuit coupled to an inoperative pixel. Indeed, Kurogane identifies defective transistors before they are ever coupled to their corresponding pixel electrodes, and then modifies the manufacturing process to make sure the defective transistors are never coupled to the corresponding pixel electrode. Accordingly, Kurogane never describes disconnecting a defective pixel drive circuit from the inoperative pixel. Indeed, because the defective transistor was never connected in the first place, there is nothing to disconnect. Further, as previously mentioned, Kurogane does not describe or suggest connecting an inoperative pixel to a working drive circuit of a nearby pixel that may be an adjacent pixel or a non-adjacent pixel.

Additionally, for all of the reasons previously stated, applicants respectfully submit that none of the other cited references, alone or combined, describe or suggest the claimed invention. Because the cited references do not describe or suggest the claimed invention, applicants respectfully request that the §103(a) rejections of amended claims 1 and 15 be withdrawn. Because all other claims depend either from claims 1

or 15, applicants respectfully request that the §103(a) rejections of claims 4-6, 11-13, 18-20, 25-27 and 29-32 also be withdrawn.

Conclusion

Applicants submits that this application, including claims 1, 4-6, 11-13, 15, 18-20, 25-27 and 29-32, is allowable. Applicants therefore respectfully request that the Examiner allow this application.

Respectfully submitted,



James Trosino
Registration No. 39,862
Attorney for Applicants